

sealed sensor having a moveable structure formed on a first chip of semiconductor material and enclosed within a hermetic chamber by a circumscribing wall having a second chip of semiconductor material disposed thereon that includes a processing circuit.

Martin et al., WO96/39632, is directed to an accelerometer sensor that includes a region (36) housing a sensor element (24) that is covered by a metal paddle (30) (*see* Martin et al., page 5, line 35). The metal paddle (30) is nothing more than a protective cap and provides no processing functions whatsoever.

Yamashita et al., U.S. Patent No. 5,438,859, teaches an acceleration sensor (shown in Figures 17 and 18) that includes a piezoelectric element (81) and a hybrid (not monolithic) integrated circuit (82) supporting the piezoelectric element (81). Yamashita et al. teaches that the upper surface of the integrated circuit (82) is covered with a cover body (87) made of metal or other materials (*see* Yamashita et al., column 15, line 45-column 16, line 17). Clearly the cover body (87) has only protective function and, similar to Martin et al., provides no processing functions.

Turning to the claims, claim 1, as amended, recites a sensor with a moveable structure that comprises a sensitive element formed in a first chip of semiconductor material for producing an electrical signal dependent on a movement of at least one moveable microstructure relative to a surface of the first chip, the sensitive element being enclosed in a hollow hermetic structure formed by a second chip of semiconductor material attached to the first chip of semiconductor material over the sensitive element, and a processing circuit for processing the electrical signal formed in the second chip of semiconductor material. Claim 1 further recites the processing circuit in electrical connection with the electrical signal produced by the sensitive element formed in the first chip, and the hollow hermetic structure including a metal wall disposed on a surface of the first chip around the sensitive element, with the second chip being fixed to the wall. As discussed above, neither Martin et al. nor Yamashita et al. teach or disclose a second chip of semiconductor material attached to a first chip of semiconductor material over a sensitive element by means of a metal wall disposed on the surface of the first chip around the sensitive element to form a hollow hermetic structure with the second chip of semiconductor material having a processing circuit formed therein and in electrical connection with the electrical signal produced by the sensitive element formed in the first chip. Rather, as discussed

above, Martin et al. teaches housing his sensitive element in a metal paddle that is simply a protective cap. Similarly, Yamashita et al. teaches covering the upper surface of the integrated circuit with a cover body made of metal or other materials that has a protective function and no processing functions. In view of the foregoing, Applicants respectfully submit that claim 1 is allowable over the references cited and applied by the Examiner.

Claim 12 is directed to a sensor that comprises a first chip of semiconductor material; a sensor element having a moveable structure, the sensor element supported by the first chip and being structured to generate a first signal in response to a movement of the microstructure relative to the first chip; a second chip of semiconductor material covering the sensor element and configured to receive the first signal; and a wall formed on the first chip and surrounding the sensor element and connecting the first chip to the second chip, the wall defining a hermetically sealed chamber between the first chip and the second chip and enclosing the sensor element. Claim 12 further recites the second chip of semiconductor material comprising a processing circuit electrically coupled to the sensor element to receive the first signal, the processing circuit structured to process the first signal and to generate a second signal based on the first signal. As discussed above with respect to claim 1, neither Martin et al. nor Yamashita et al. teach or disclose a second chip of semiconductor material covering a sensor element formed on a first chip of semiconductor material with a processing circuit formed as part of the second chip of semiconductor material to process a signal received from the sensor element and to generate a second signal based on the first signal. Rather, both Martin et al. and Yamashita et al. teach covering their respective circuits with a metal cap or cover body made of metal or other materials. No processing functions are incorporated within either of their covers. Applicants respectfully submit that claim 12 is allowable for these reasons.

In view of the foregoing, Applicants respectfully submit that all of the claims in this application are now clearly in condition for allowance. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited. In the event the Examiner finds minor informalities that can be addressed by telephone conference, the Examiner is urged to contact Applicants' undersigned representative at telephone (206) 622-4900 in order to expeditiously resolve prosecution of this Application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

Respectfully submitted,

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